

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMLC069515

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

HOBBS OCD

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

CONOCOPHILLIPS COMPANY

Contact: ASHLEY BERGEN

E-Mail: ashley.bergen@conocophillips.com

3a. Address

MIDLAND, TX 79710

3b. Phone No. (include area code)

Ph: 432-688-6983

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 25 T26S R32E NENE 250FNL 125FEL
32.011294 N Lat, 103.371282 W Lon

8. Well Name and No.

WAR HAMMER 25 FEDERAL COM W3 1H

9. API Well No.

30-025-42029-00-X1

10. Field and Pool, or Exploratory
WILDCAT

11. County or Parish, and State

LEA COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original A
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	PD

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

ConocoPhillips Company respectfully requests to amend the approved APD with the revised casing and cementing program.

The following attachments are included in the proposal:
Attachment #1: Wellbore Schematic
Attachment #2: Axiom AX-L Shaker 3- Deck Technology
Attachment #3: Axiom Layout

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #301430 verified by the BLM Well Information System For CONOCOPHILLIPS COMPANY, sent to the Hobbs Committed to AFMSS for processing by CHRISTOPHER WALLS on 08/17/2015 (15CRW0080SE)	
Name (Printed/Typed) ASHLEY BERGEN	Title STAFF REGULATORY TECH
Signature (Electronic Submission)	Date 05/12/2015
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
Approved By	Title
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	
Office	Date
BUREAU OF LAND MANAGEMENT CARLSBAD FIELD OFFICE	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ******AUG 24 2015**

**Sundry Notice Request
ConocoPhillips Company
Red Hills West; Wolfcamp
War Hammer 25 Federal COM W3 1H**

Lea County, New Mexico

ConocoPhillips Company respectfully requests to amend the approved sundry with the revised casing and cementing program.

2. Proposed Casing and Cementing Program – Option to Not Run 9-5/8" Casing set at Ford Shale/Delaware Sands

ConocoPhillips Company respectfully requests the option to not run 9-5/8" 40# L-80 BTC Casing and spare it as a contingency if the next hole section failed to support the hydrostatic column of the previous mud weight. The intent for the casing and cementing program – Not Run 9-5/8" Casing Option is to:

- Drill the 12-1/4" and 8-3/4" hole sections with the same density mud (OBM or Saturated Brine).
- Case and cement the well with 13-3/8" surface, 7-5/8" intermediate and 5" production casing (3-strings).
- Isolate the Salt & Delaware utilizing Annulus Casing Packer and Stage Tool if necessary.
- Bring cement from 7-5/8" casing shoe to surface.
- Provided that if the hole can no longer support the hydrostatic column of the previous mud weight, a contingency plan to run the 9-5/8" casing will be the preferred if severe losses occurs during drilling the well.

The mud systems that are proposed for use are as follows:

DEPTH (FT)	TYPE	Density (ppg)	FV (sec/qt)	API Fluid Loss (cc/30 min)	pH	Vol (bbl)
0 – 800	Fresh Water or Fresh Water Native Mud in Steel Pits	8.5 – 9.0	28 – 40	N.C.	N.C.	700
800 – 4825	Oil Base Mud or Brine (Saturated NaCl ₂) in Steel Pits	8.9 – 10.5	28 – 40	N.C.	10 – 11	700 – 1500
4825 – 12150	Oil Base Mud or Brine (Saturated NaCl ₂) in Steel Pits with Wellbore Strengthening Material (25 – 30 ppb SureSeal)	8.9 – 10.5	28 – 40	5 – 10	10 – 11	1500 – 2300
12150 – TD	Oil Base Mud (O:W 80/20) in Steel Pits	13.5 – 15.0	18 – 30	1 – 3	N.C.	1500 – 2000

The changes proposed will be the use of 20 ppb – 25 ppb Wellbore Strengthening material (Walnut Fine) in 8.9 ppg to 10.5 ppg OBM or Saturated Brine with Axiom 3-deck shakers for recycling to increase the formation breakdown pressure above what would have with clear saturated 10 ppg brine.

All Tubulars used for this design will be new. A multi-bowl system will be utilized. Option Not to Run 9-5/8" will be as follows:

Hole Size (in)	Casing (in)	Wt/Ft	Grade	Connection	Thread & Cplg OD	Depth (ft)	Depth (ftTVD)	Depth (ftMD)	BOPE System
17 1/2	13 3/8	54.5	J-55	BTC	14.375	0-800	800	800	N/A
12 1/4	9 5/8	40	L-80	BTC	10.625	0-4825	4825	4825	5M
9-7/8 or 8-3/4	7 5/8	29.7	P-110	BTC or Tenaris W523	7.752	0-12150	12150	12150	5M
6 3/4	5	18	P-110	Tenaris Blue/TXP	5.720	0-19760	12974	19760	10M

Minimum casing design factors: Burst 1.0, Collapse 1.125, Tensile Strength 1.6 Dry / 1.0 Buoyant

Hole Size (in)	Casing (in)	Burst	Collapse	Tension	Minimum Clearance
17 1/2	13 3/8	6.07	2.51	20.39	1.5625
12 1/4	9 5/8	2.18	1.17	5.84	0.8125
9-7/8 or 8 3/4	7-5/8	1.61	**1.7	2.14	0.4990
6 3/4	5	1.65	1.60	3.07	0.515

**COP Collapse Design

1/3 Partial Evacuation to Next Csg

		Volume (sx)	Type	Weight (ppg)	Yield (ft3/sx)	Water (Gal/sx)	Excess	Cement Top
Surface	Lead	530	Class C	13.6	1.73	10.88	>100%	Surface
	Tail	310	Class C	14.8	1.35	6.39	>100%	650ft
Additives (BWOB): 4% Extender, 2% CaCl2, 0.125 lb/sx LCM, 0.2% Anti-Foam								
Intermediate 1	Lead	1430	Tuned Light	11.9	1.91	11.85	>100%	Surface
	Tail	380	Class C	14.8	1.33	8.23	>100%	4325ft
Additives (BWOB): 4% Extender, 2% CaCl2, 0.125 lb/sx LCM, 0.2% Anti-Foam								
Intermediate 2	Lead	900	Tuned Light	9.7	2.44	9.116	>30%	Surface
	Tail	140	TXI	13.2	1.53	7.474	>30%	11650ft
Additives (BWOB): 0.4% Dispersant, 1 lb/sx Salt, 0.1% Retarder, 0.5% Fluid Loss, 3 lb/sx LCM								
Production	Lead							
	Tail	750	Class H	15	1.14	3.216	>35%	11650ft
Additives (BWOB): 0.4% Retarder, 0.2% Anti-foam, 0.7 Anti-gelling, 0.4% Fluid Loss, 2% Expanding Agent, 5.0% Silica								

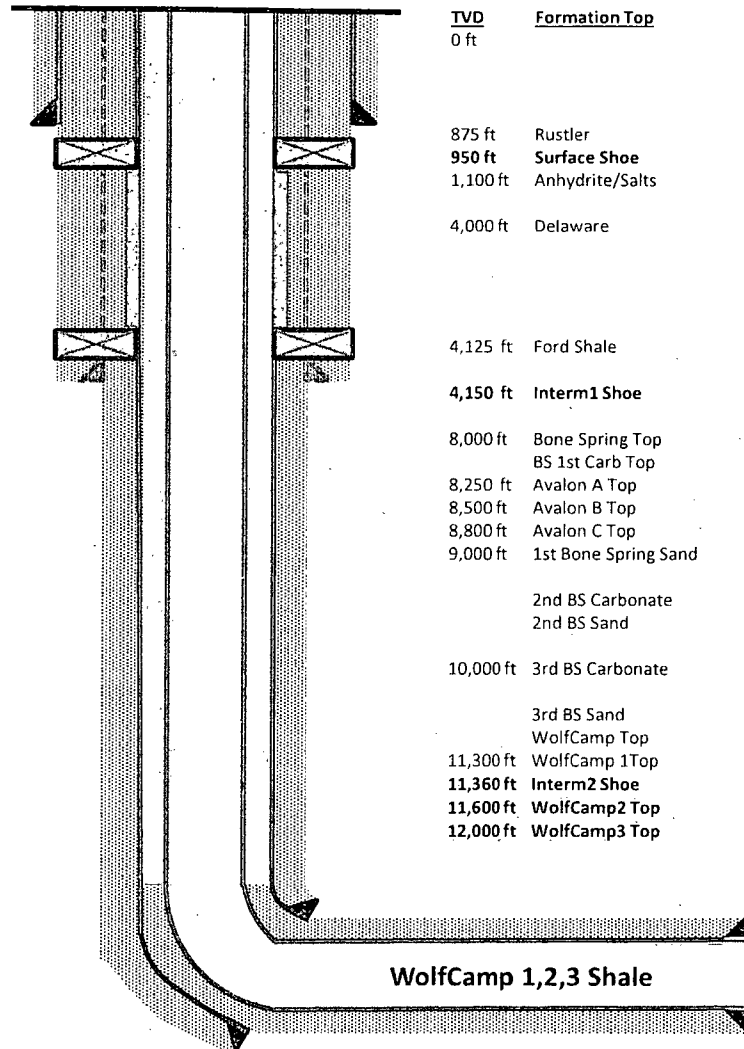
9-5/8" Casing will be set aside as contingency string for cementing with severe losses if necessary.

Attachments:

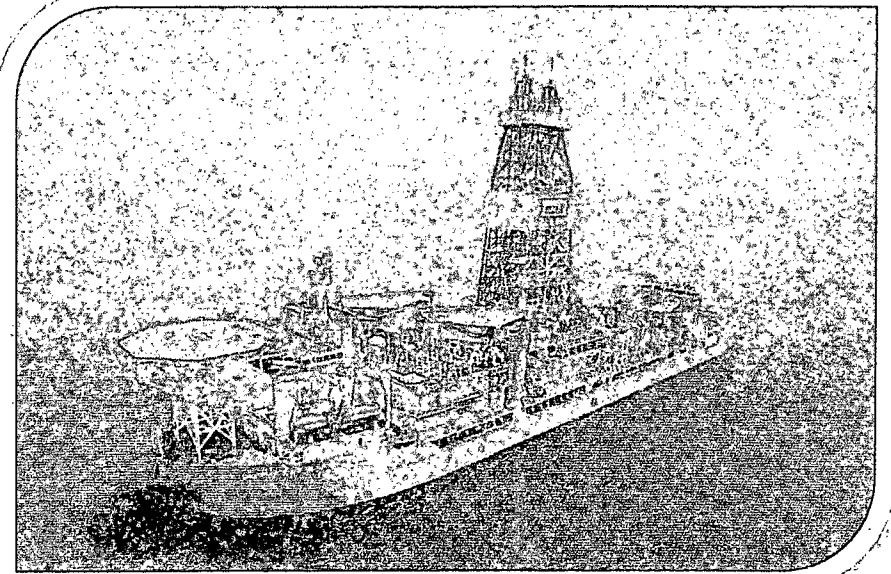
- ✎ Attachment # 1 Wellbore Schematic
- ✎ Attachment # 2 Axiom AX-L Shaker 3-Deck Technology
- ✎ Attachment # 3 Axiom Layout

Sundry request proposed 11 May 2015 by:
James Chen, P.E.
Drilling Engineer | ConocoPhillips Permian Shale
Office Phone: 281.206.5244
Cell Phone: 832.768.1647

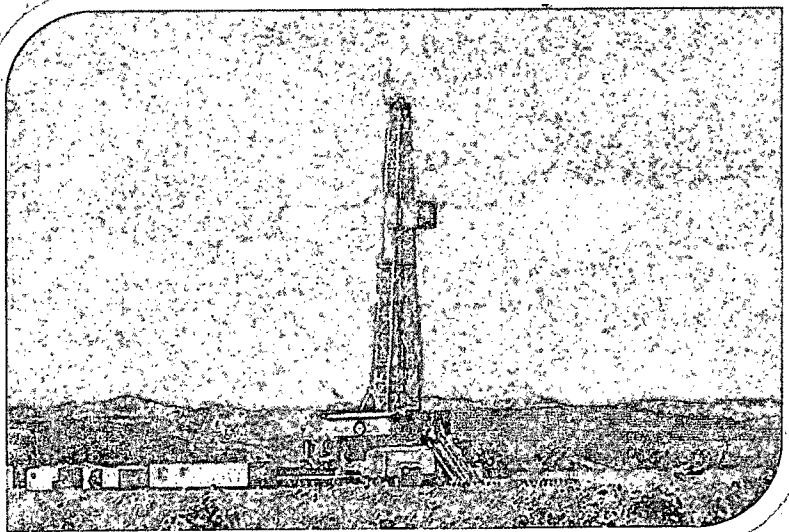
3-String w/ Contingency Option (War Hammer 25 Fed W3 1H)



- ▷ Surface Section:
 - Objective: Protect fresh water horizons.
 - Drill 17-1/2" hole to +/- 950 ft. "Rustler"
 - Mud weight: 8.6 – 9.1 ppg FW-Native Mud
 - **Set 13-3/8" 54.5# J-55 BTC casing.**
 - Cement to surface.
- ▷ Intermediate1 Section (Only for Contingency):
 - Objective: Isolate the Salado Salt and Delaware Sand interval.
 - Drill 12-1/4" hole to +/- 4,150 ft. "Ford Shale"
 - Mud weight: 10.0 ppg Brine.
 - **Set 9-5/8" 40# L-80 BTC casing.**
 - Cement to surface.
- ▷ Intermediate2 Section:
 - Objective: Isolate depleted/weak formations above WC1.
 - Drill 8-3/4" hole to +/- 11,360 ft. 110'-120' inside WC1 Top.
 - **Mud weight: 10 ppg Brine & 30 ppb WBS (Discuss 9.2 OBM Option)**
 - **Set 7-5/8" 29.7# P-110 Tenaris W523 casing.**
 - **Bond Coat ~ 3000' of Csg covering the delaware sands**
 - Cement to surface.
 - 2 or 3-Stage Contingency with 2ea. Packer/Stage Collars
- ▷ Production Section:
 - Objective: Provide zonal isolation of production interval and provide medium for stimulation.
 - Drill 6-3/4" hole to +/- 18,000ft – 20,000ft. "Production TD"
 - Mud Weight: 13.5 – 15.0 ppg (15.2 ppg Max) OBM.
 - **Set 5" 18# P-110 TenBlue/TXP casing.**
 - Cement lap 500 ft above previous shoe (near KOP).



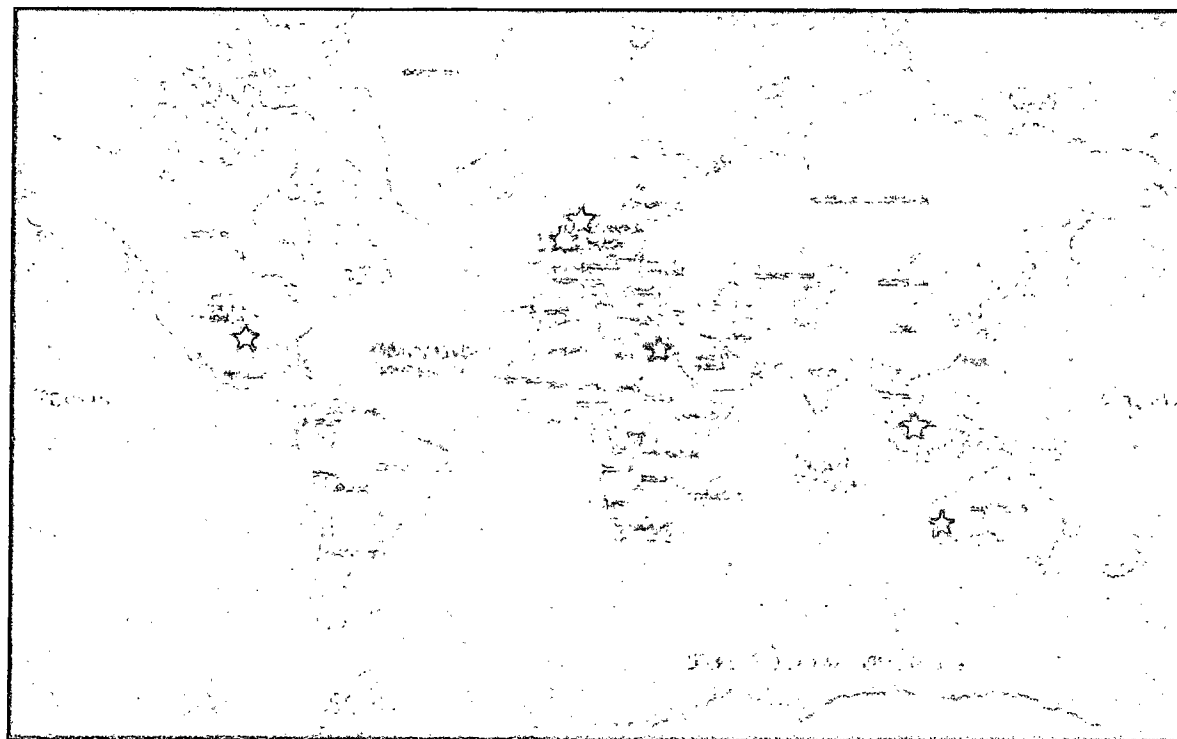
Axiom Process LLC



Background

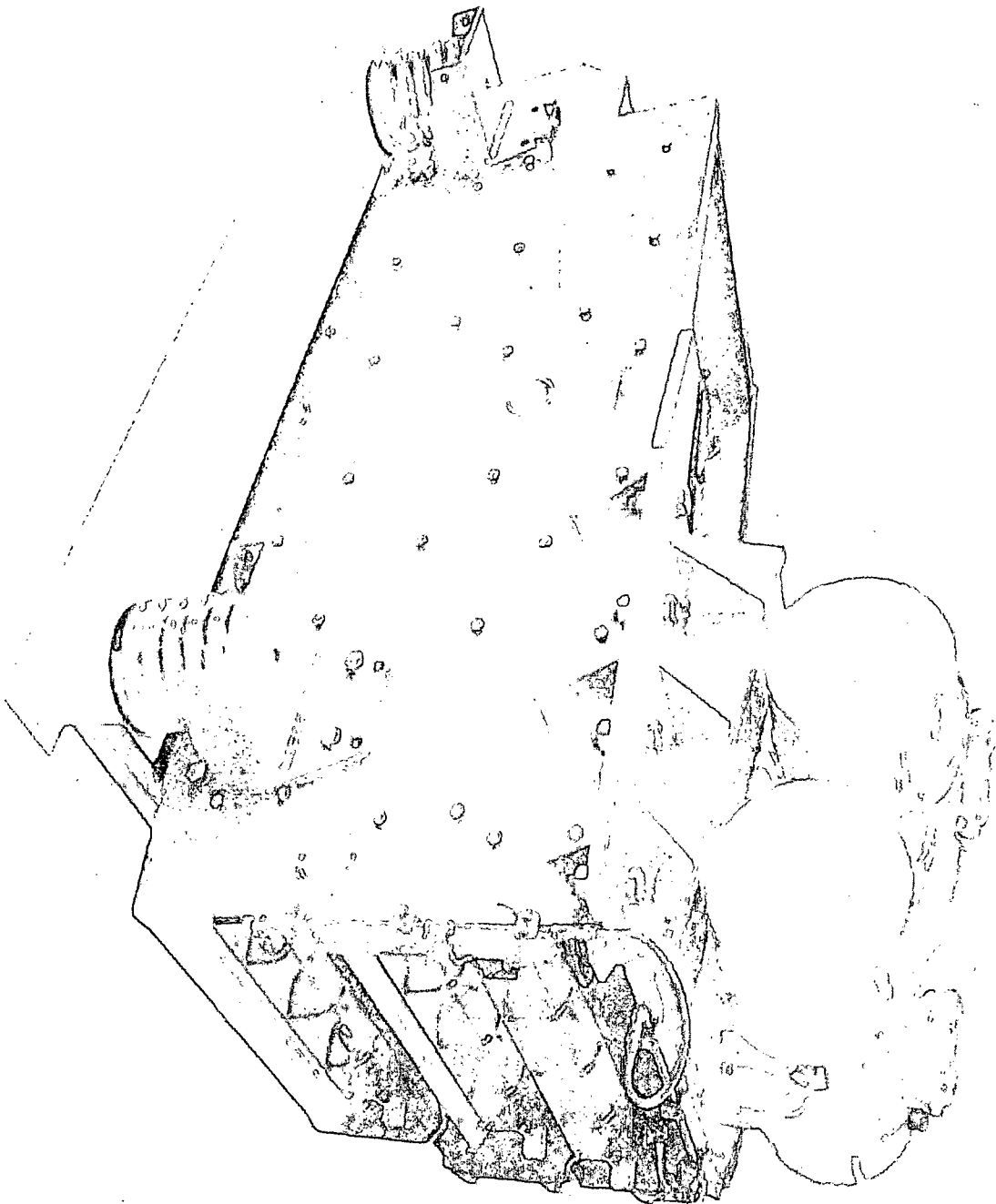
Axiom Locations

***Axiom Process is a privately owned company which was founded in 2001.
We invented 3-deck shakers to fit the growing needs of deep water applications.
To date we have 300+ shakers in operation across 70+ rigs globally.***

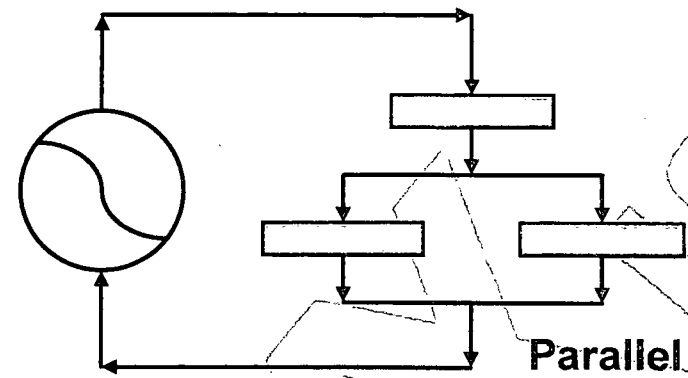
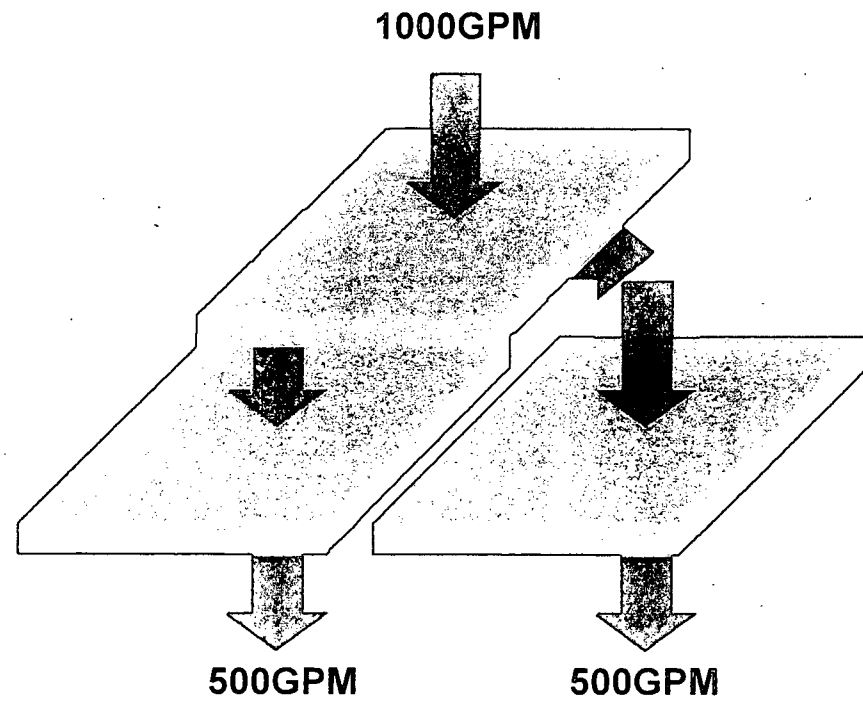
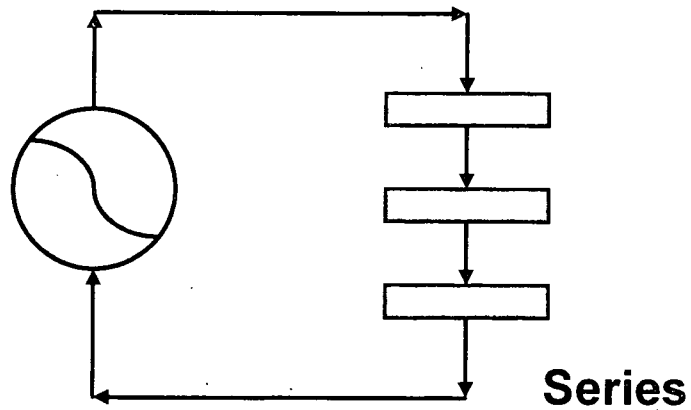
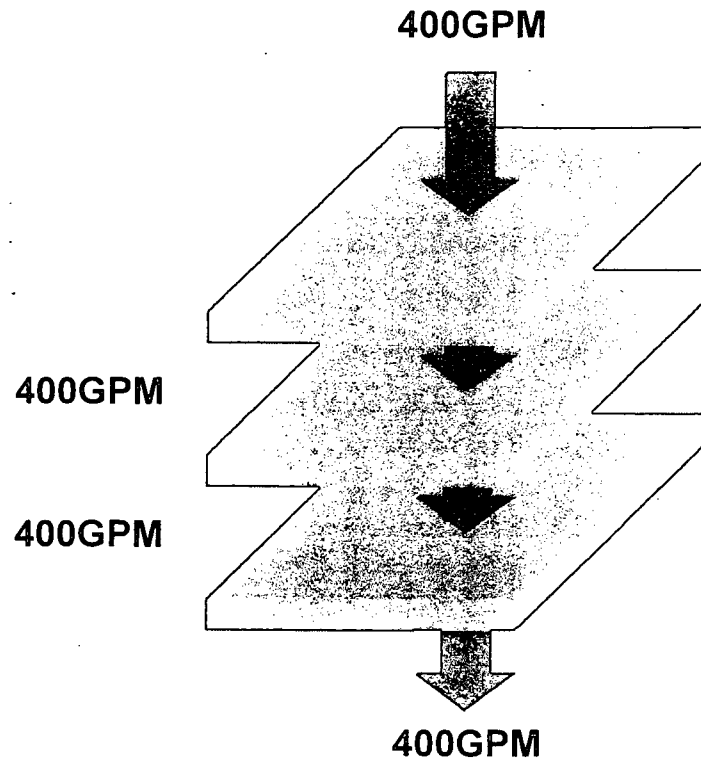


Axiom (AX-L) Shaker

3-Deck Technology

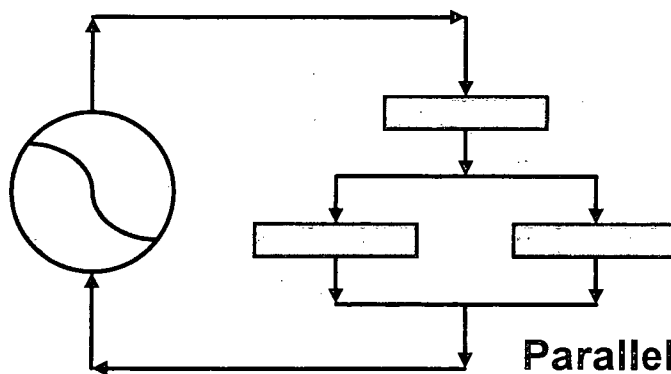
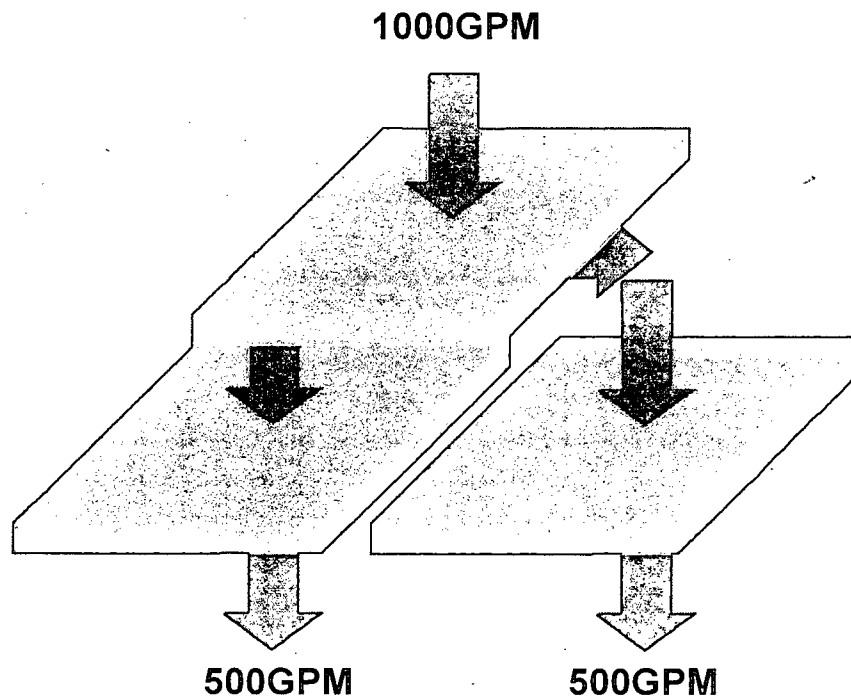


Series Mode vs Parallel Mode

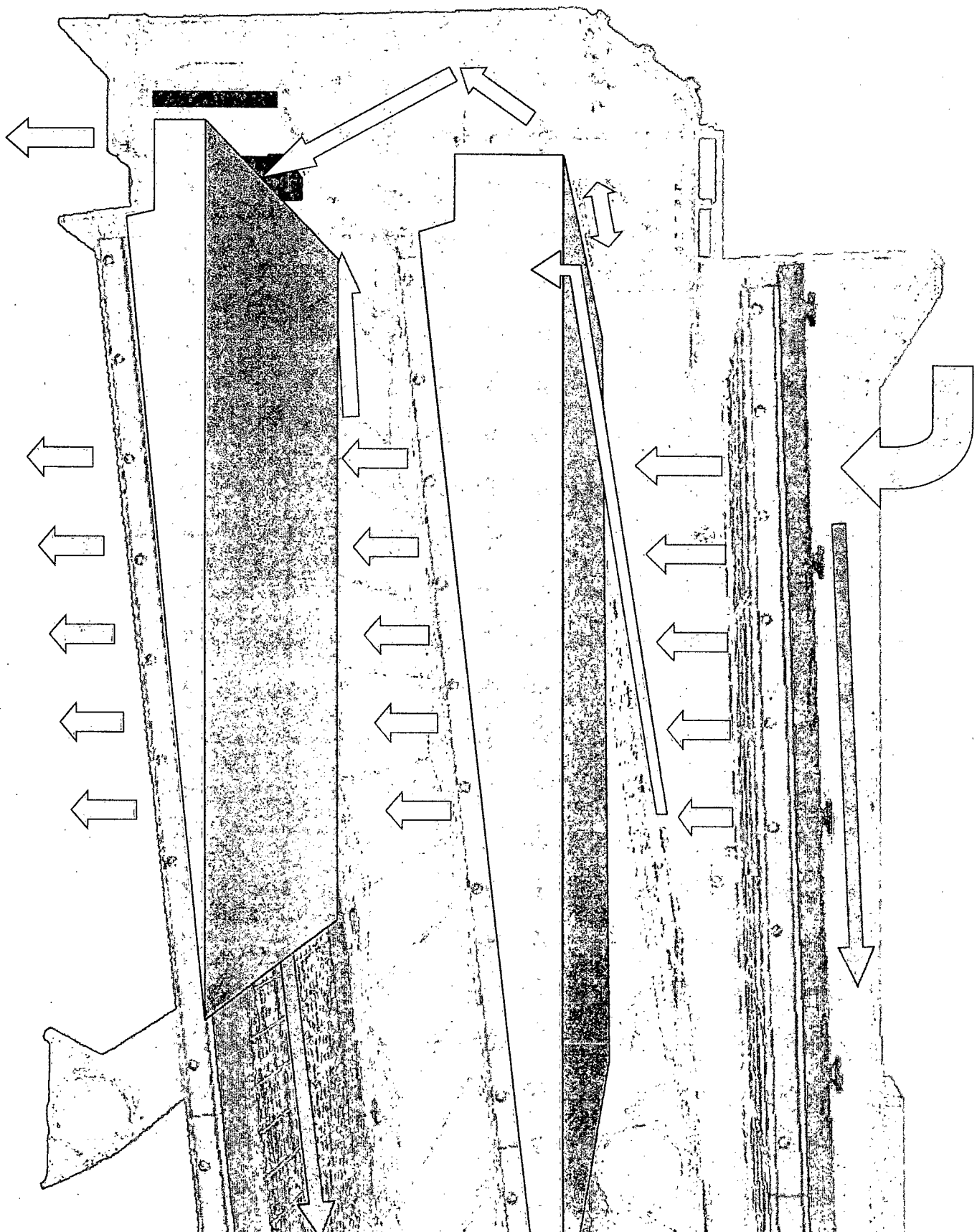


Parallel Mode

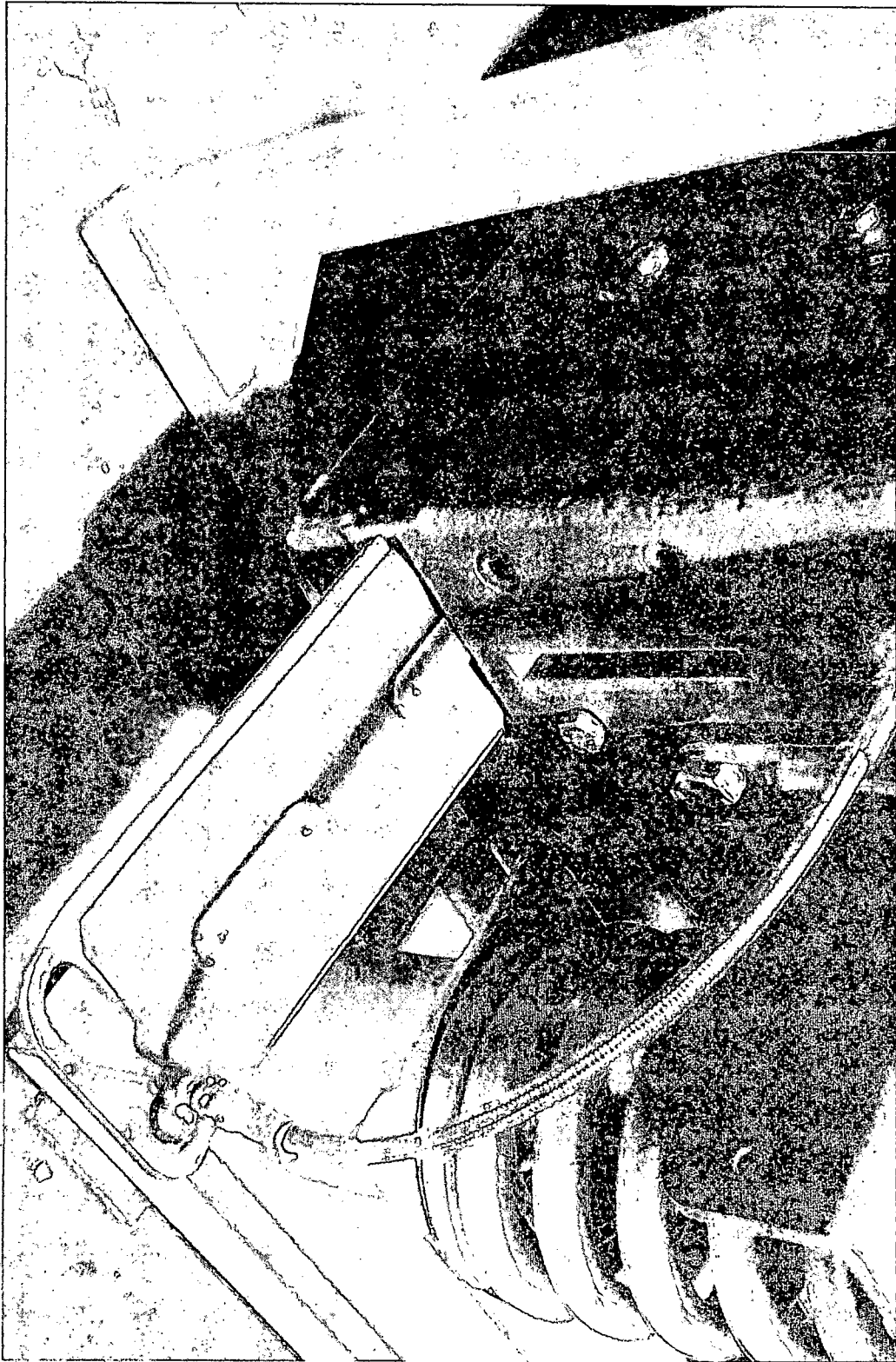
Parallel Flow Distribution



The Parallel Concept

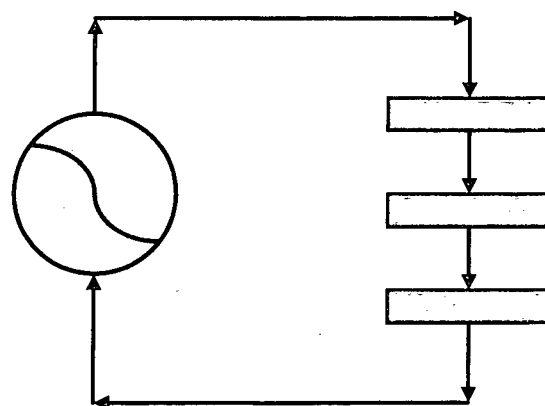
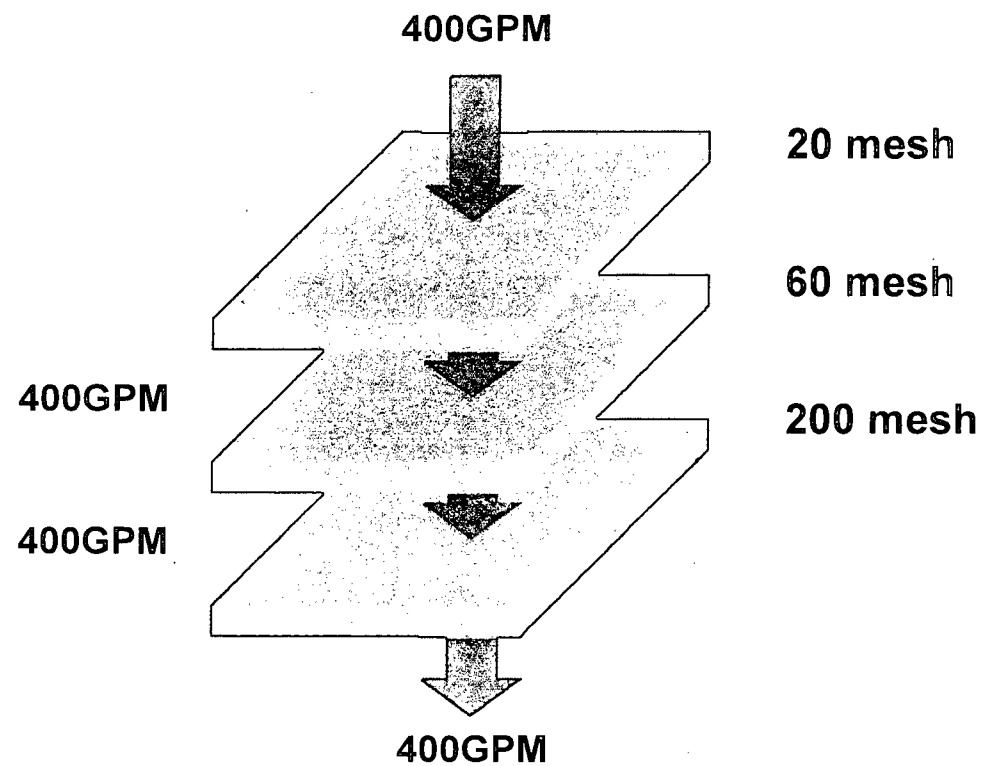


Switching Modes



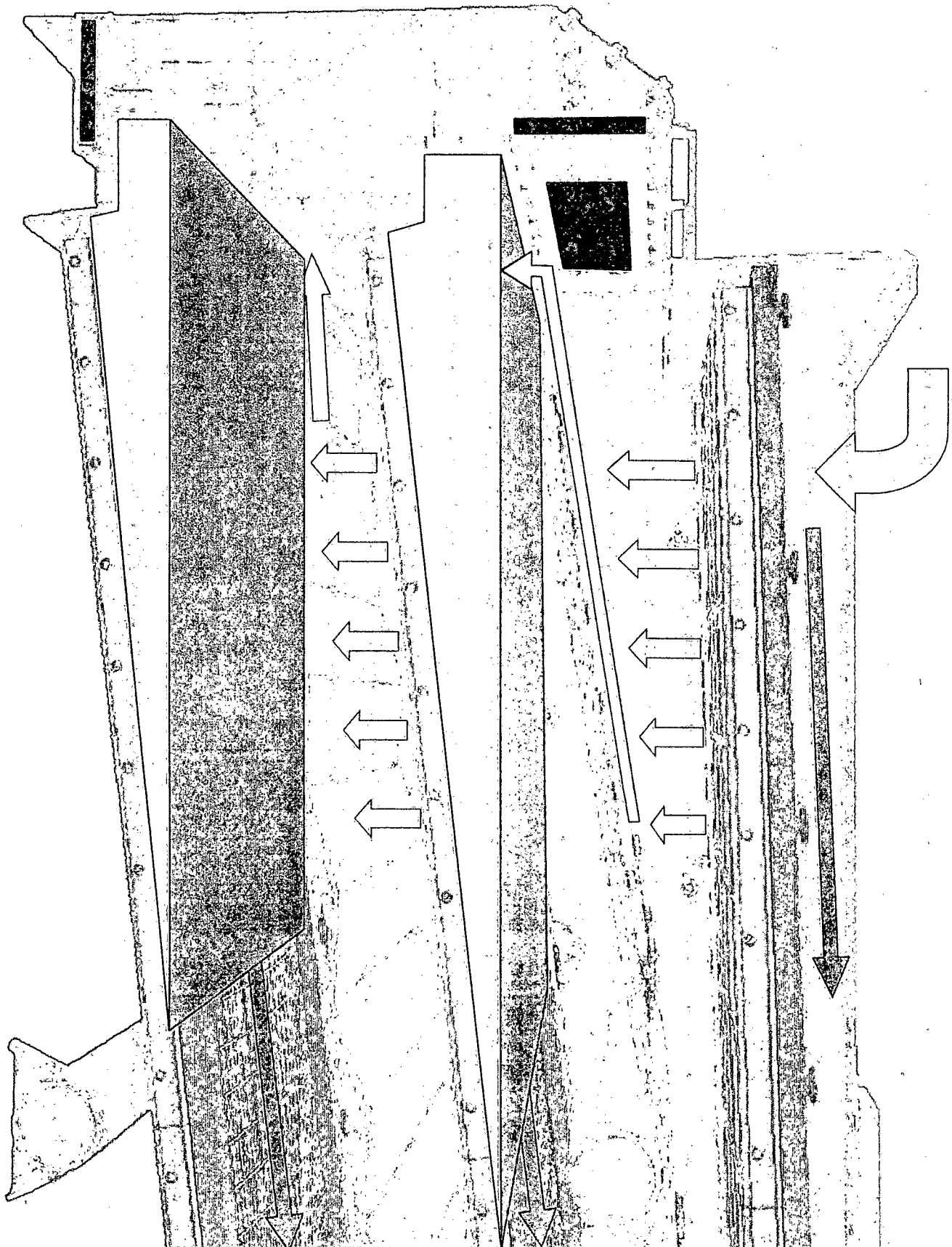
Series Mode

Series Flow Distribution

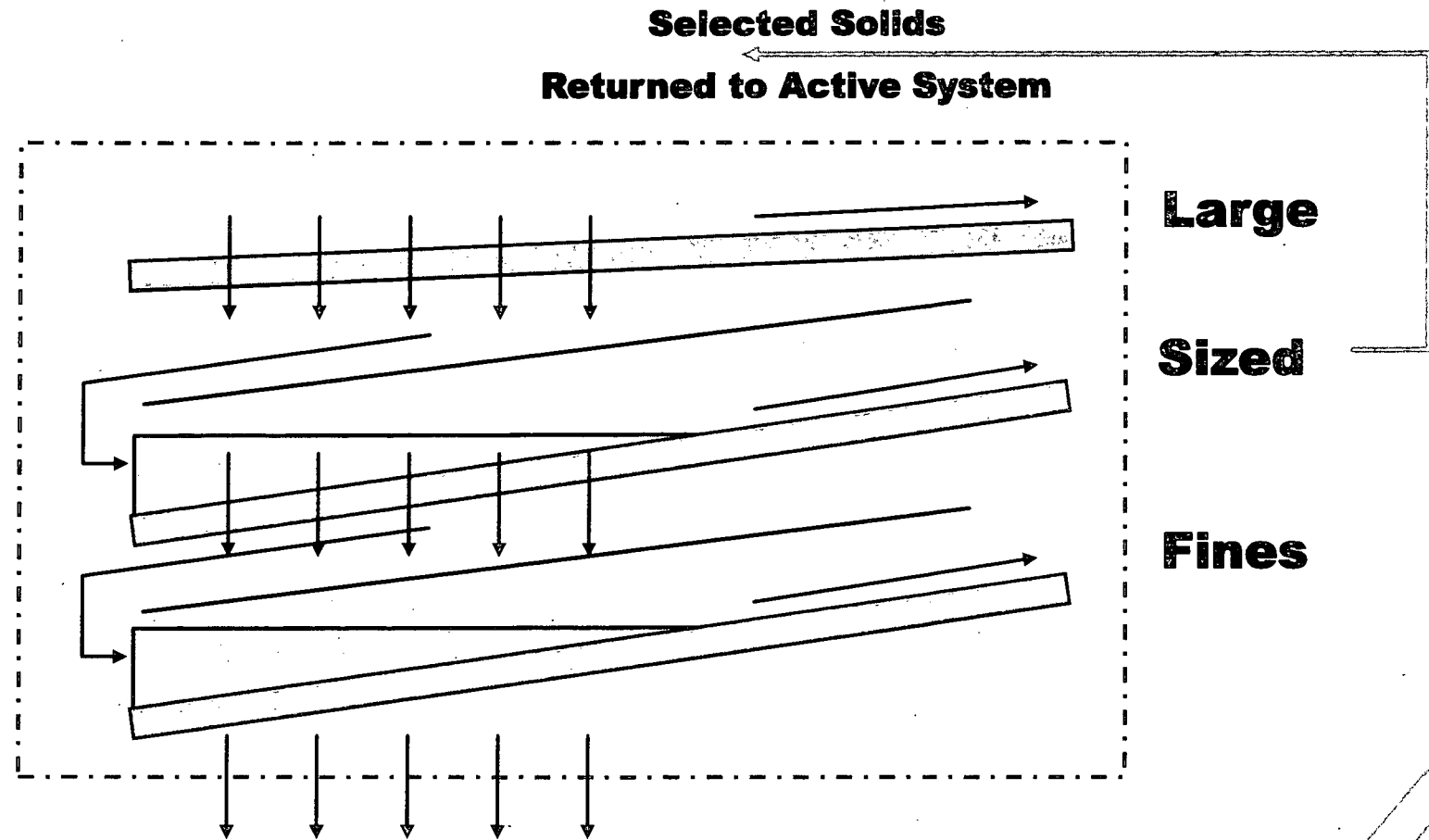


Series

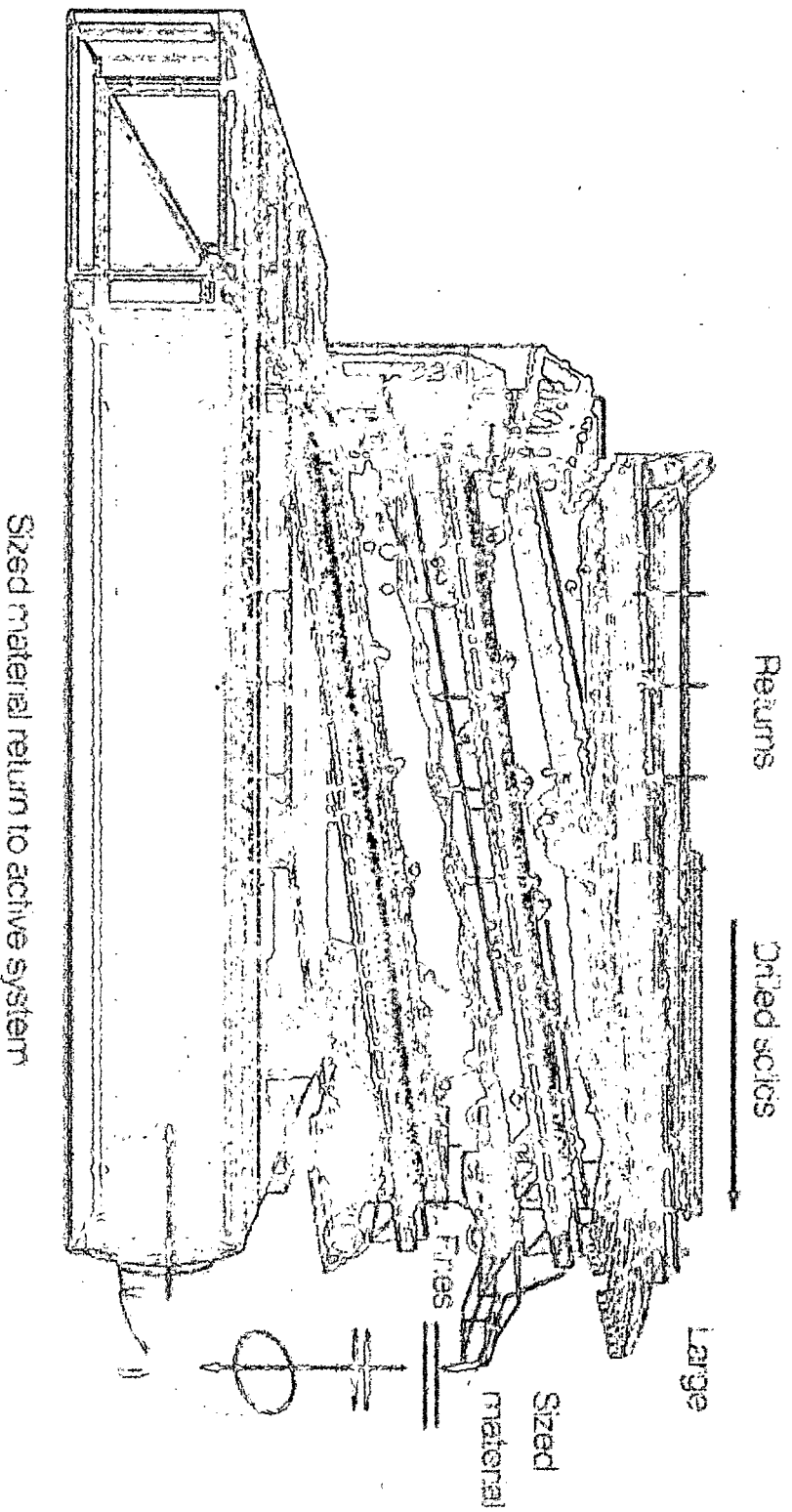
Series Mode



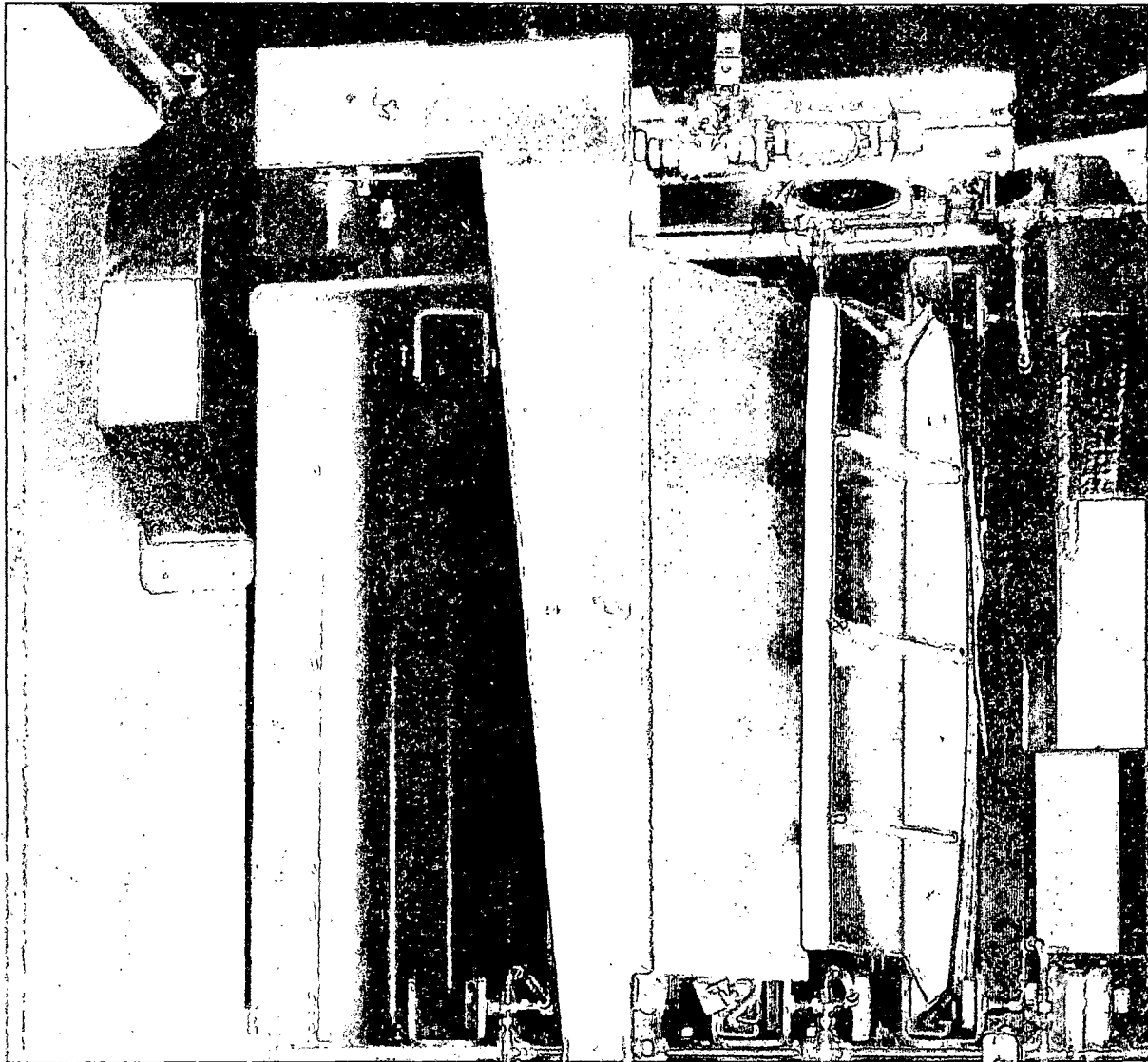
Series Mode



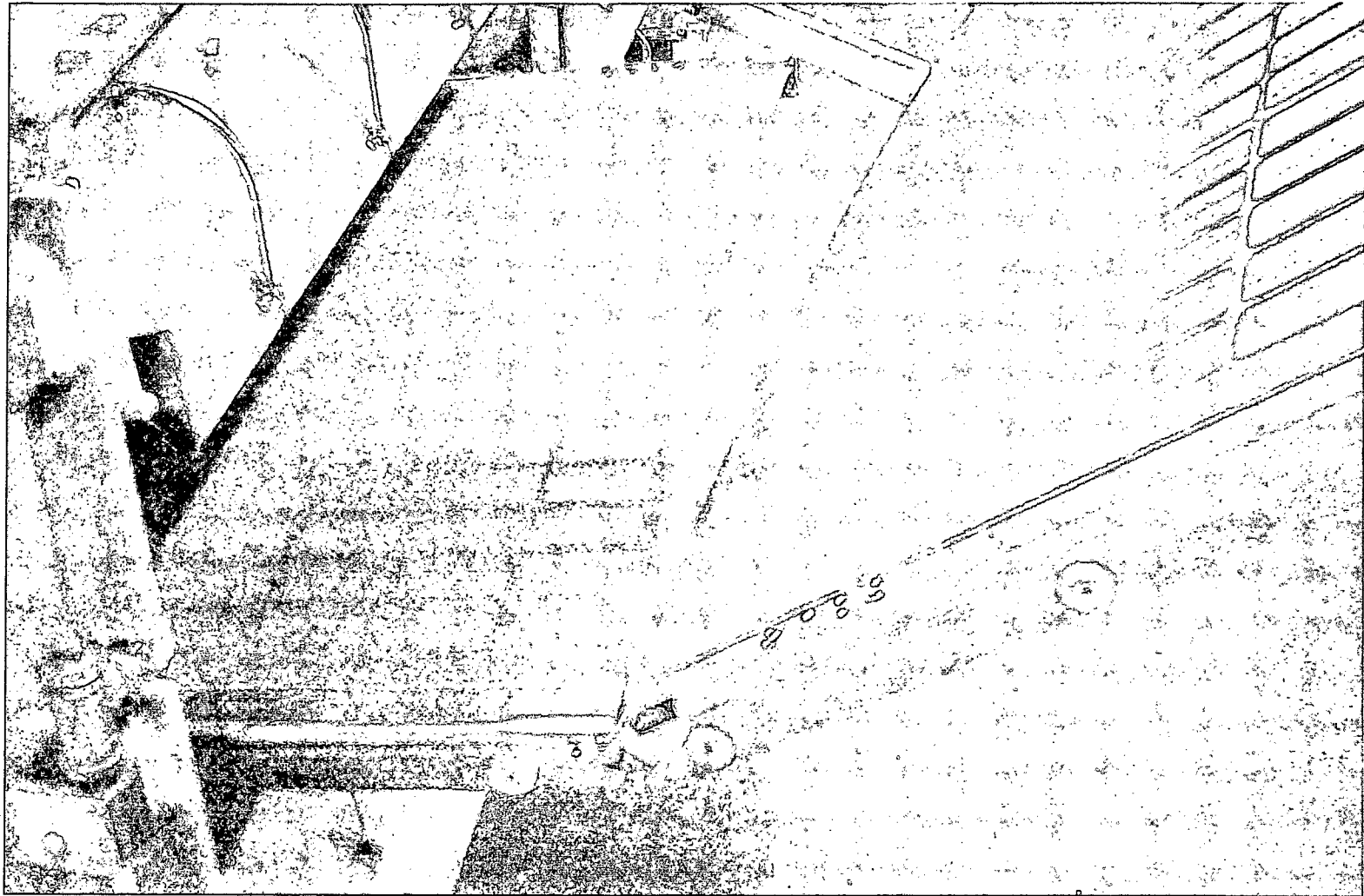
- Series mode allows the operator to retain various size ranges of particles on the middle deck while still allowing finer particles to be removed from the lower deck.



Sized Material Recovery (SMR)



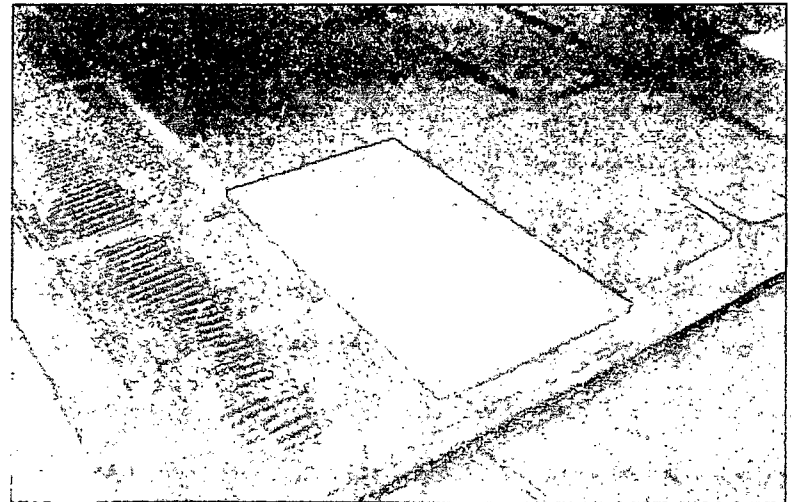
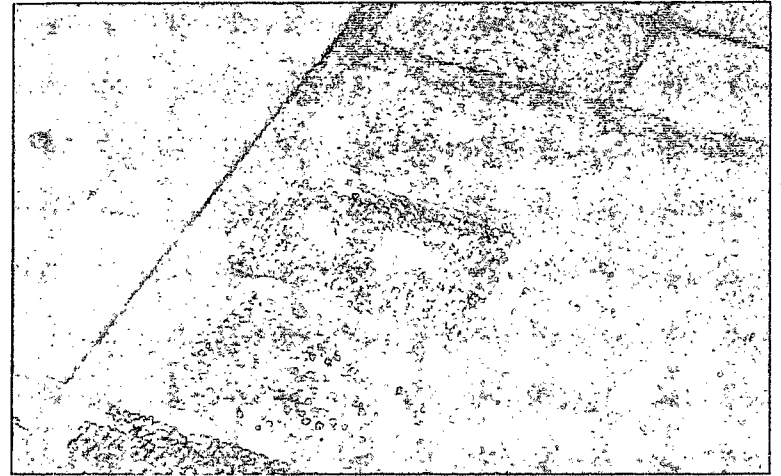
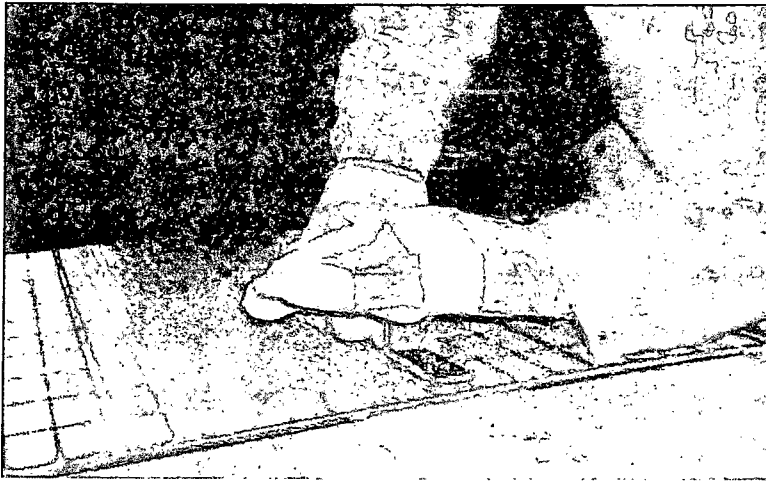
AX Screen Technology



AX Screens are loaded from the front of the shaker and pneumatically clamped in place utilizing our patented locking wedge system.

Screen Repair Process

Axiom



Axiom screens are repairable using our patented fast snap plugs. The screens are repairable up to 20% of the screening area which is roughly 40-45 plugs.

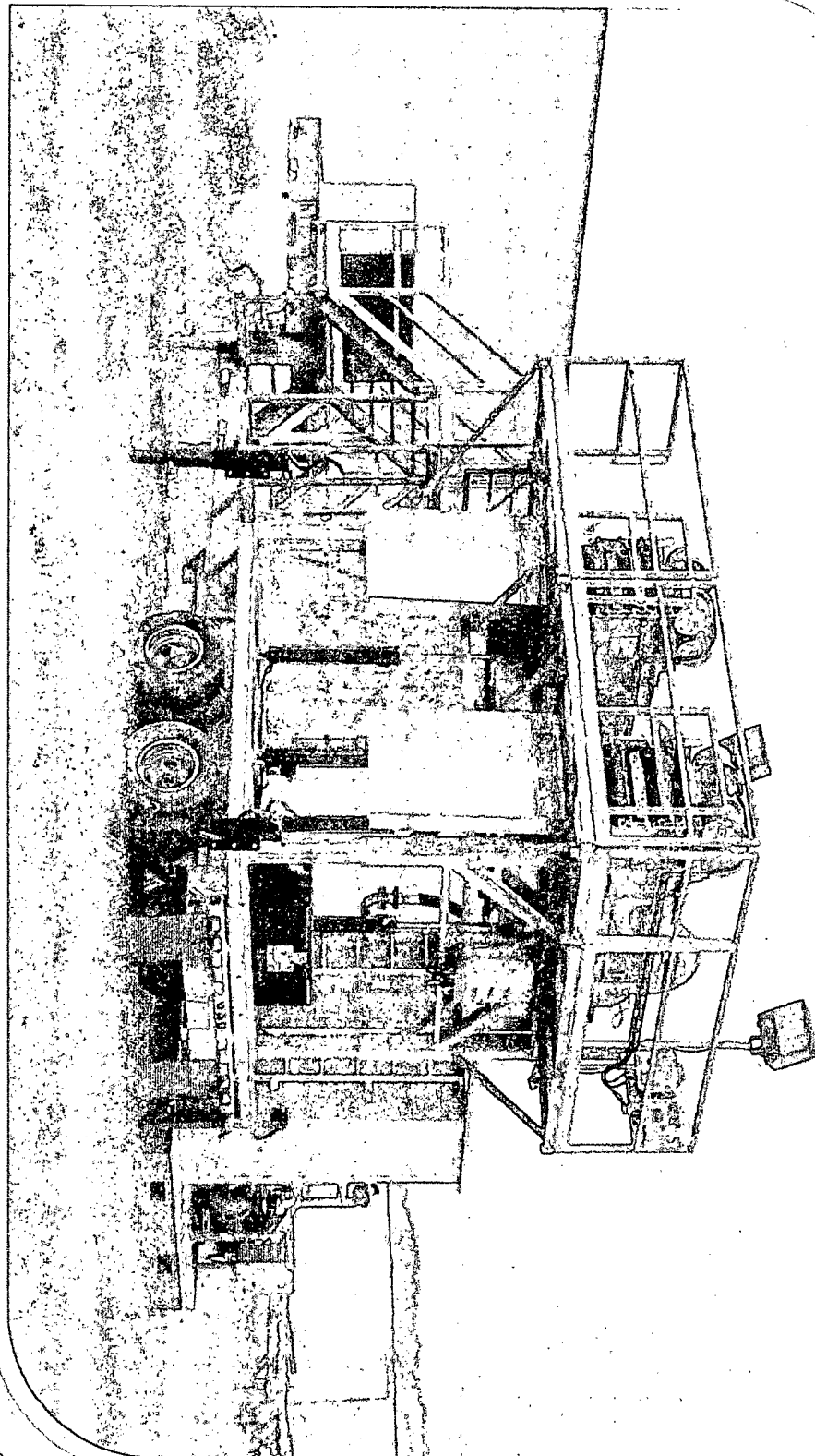
The AX-L Mobile Processing Unit

Innovative use of 3-Deck Technology

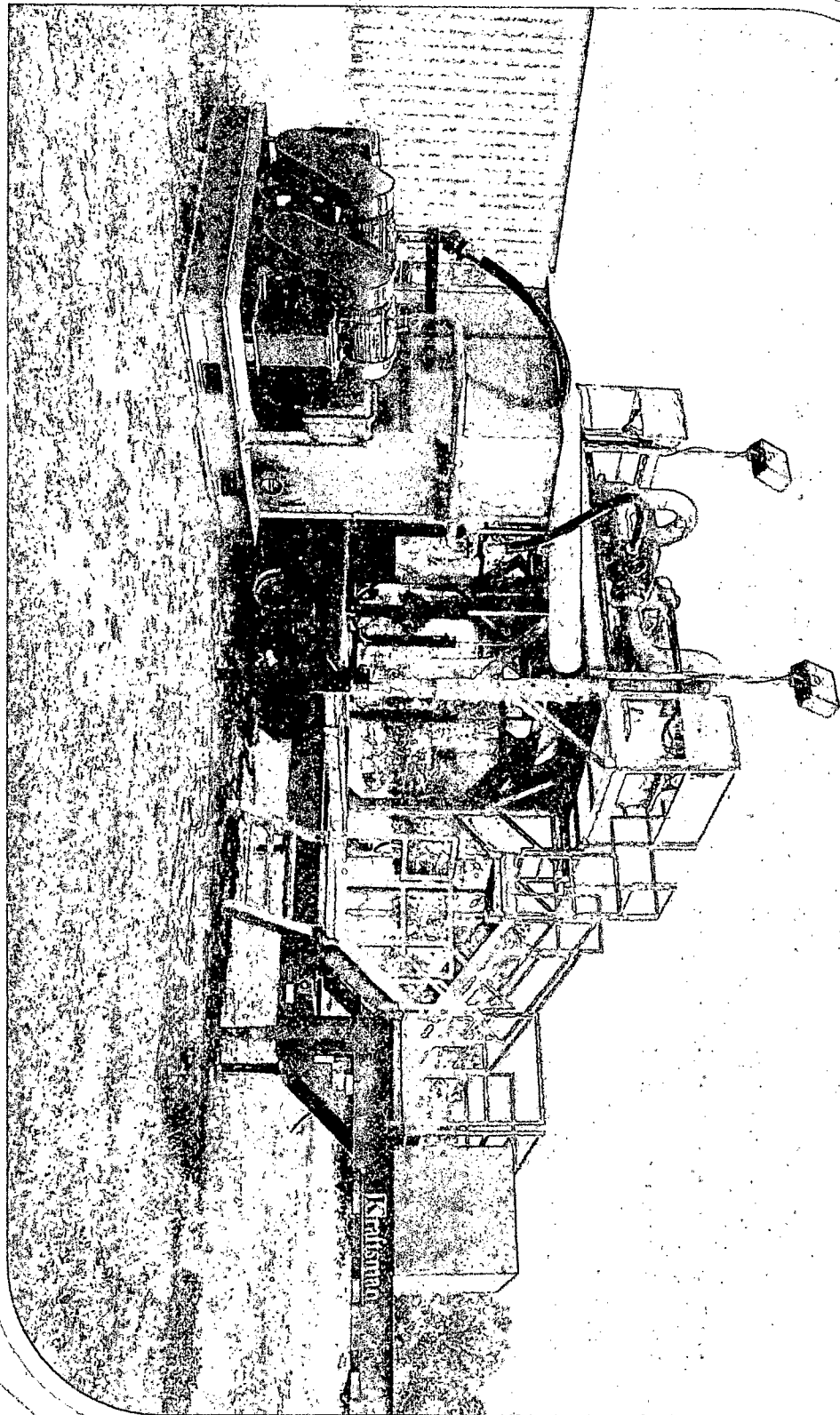
Design Goals

- *Designed to be completely plug and play*
- *No rig modifications (no welding costs)*
- *Utilize low power consumption (typically no rental generator needed)*
- *Rapid response and rig up time (Typical rig up <12 hours)*
- *Able to install without a crane, only forklift needed.*
- *Designed with operator safety in mind*

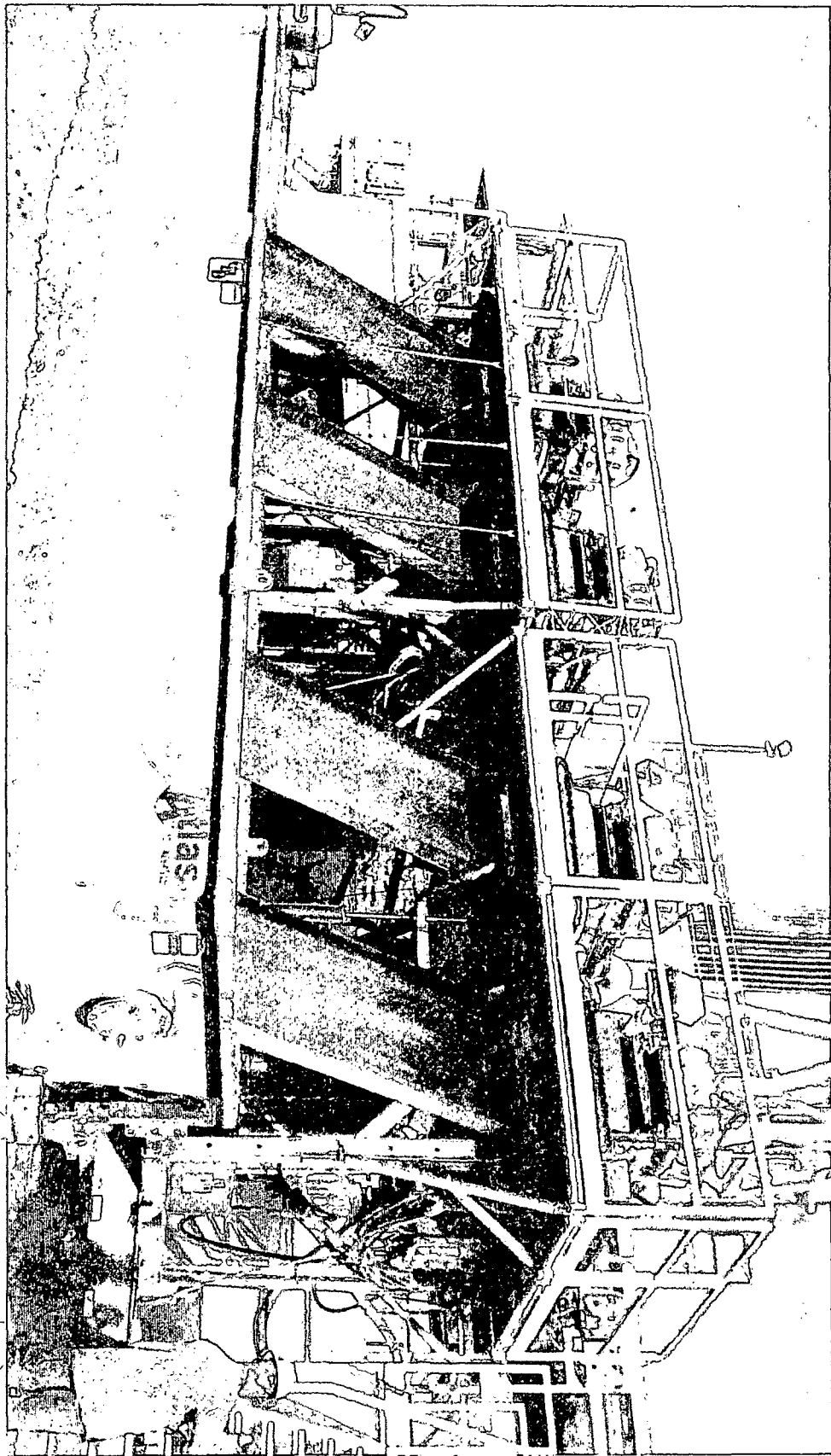
Axiom Mobile Processing Unit



Axiom Mobile Processing Unit



S. Texas / Eagle Ford



(2) Units

Conventional Options Available

Drilling Dirty: either bypassing the shakers or screening the shakers to a very coarse mesh to ensure that the desirable particles are retained.

- Increase in LGS
- Increase in Mud Density
- Increase in dilution
- Rheology kills you

Running the Shakers conventionally: the desirable material will be discarded and large quantities of material will have to be re-added.

- Impractical
- Costly

“The Axiom Option”

The ability to drill with high concentrations of WBS material in the drilling fluid while maintaining proper Rheology

Simple Solution:

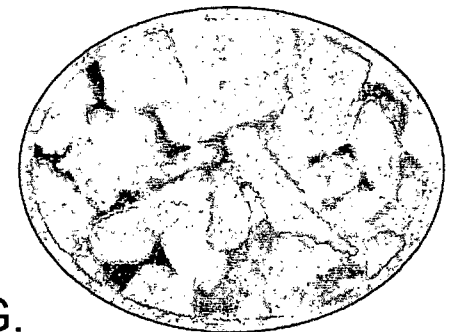
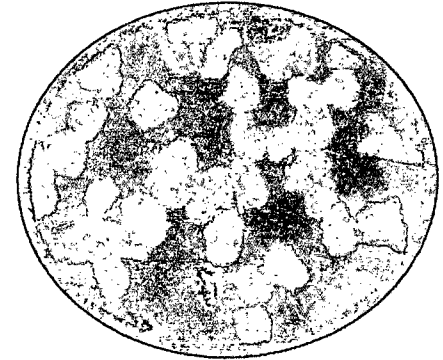
- Retain properly ‘sized’ material
- Remove ‘non-sized’ material (Fines)

Advantages:

- *Lower LGS, lower Dilution rates, better ECD control, maintain density, reduce or eliminate mud losses and lower material cost*
- *Instant ability to remove WBS material from the mud system when the well program dictates*

Common Materials Used

- Calcium Carbonates
- Fibrous Materials
- Granular
- Graphite
- Mica



Concentrations from 10 ppb to 75 ppb, depending on product SG.

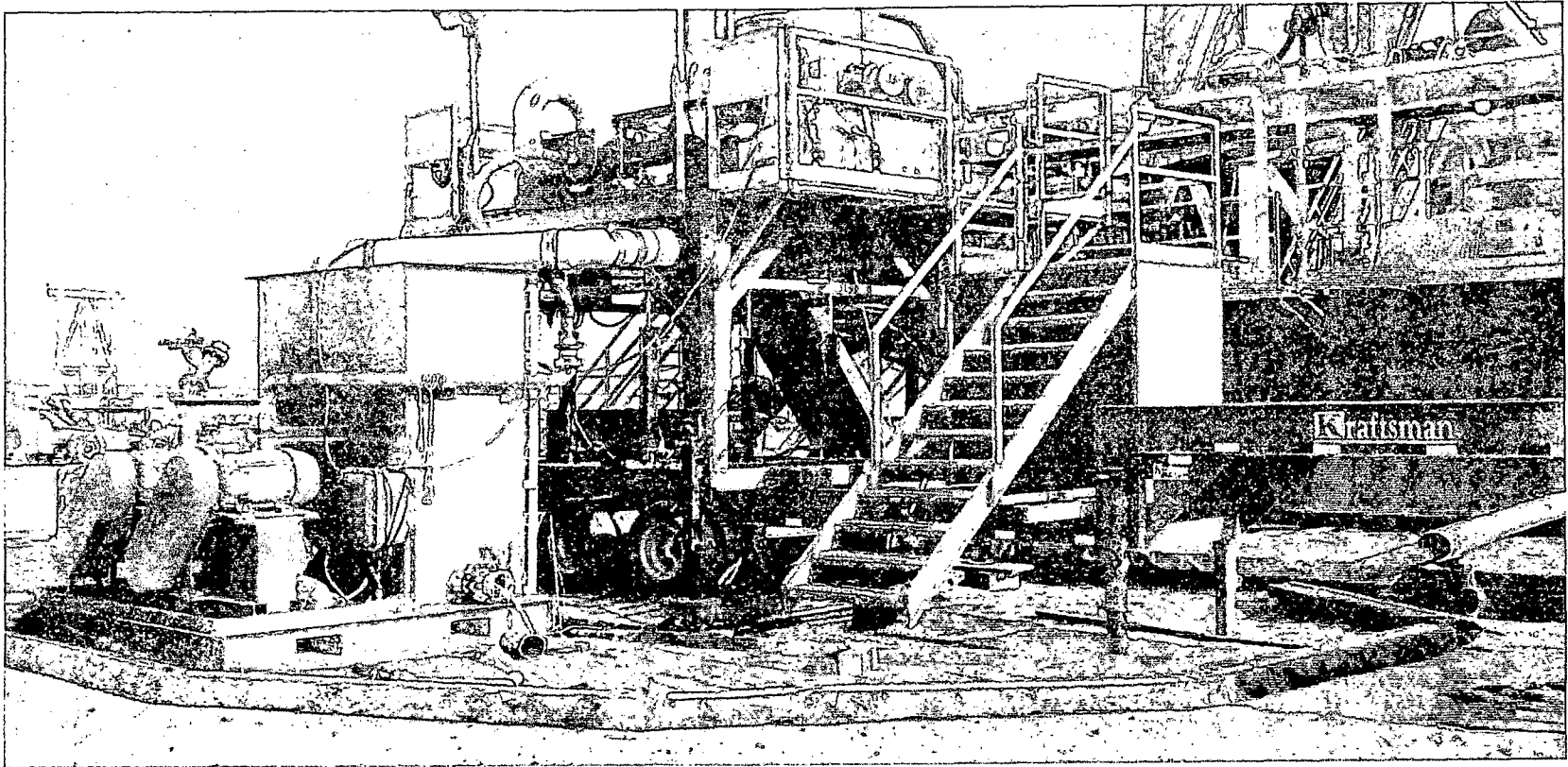
Sizes ranging from 100 to 1000 microns

Information Required



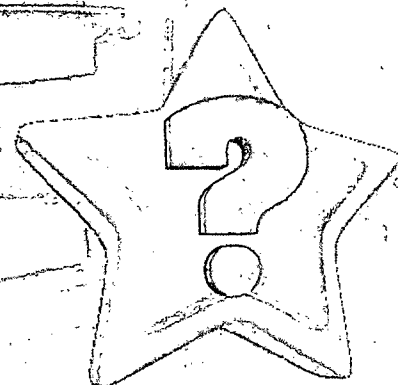
- Product that will be used, nut plug, mica, etc...
- Size range of particles that you want to retain
- Concentrations (ppb)
- PSD's of material to be used (if size range cannot be provided)
- Rig site survey

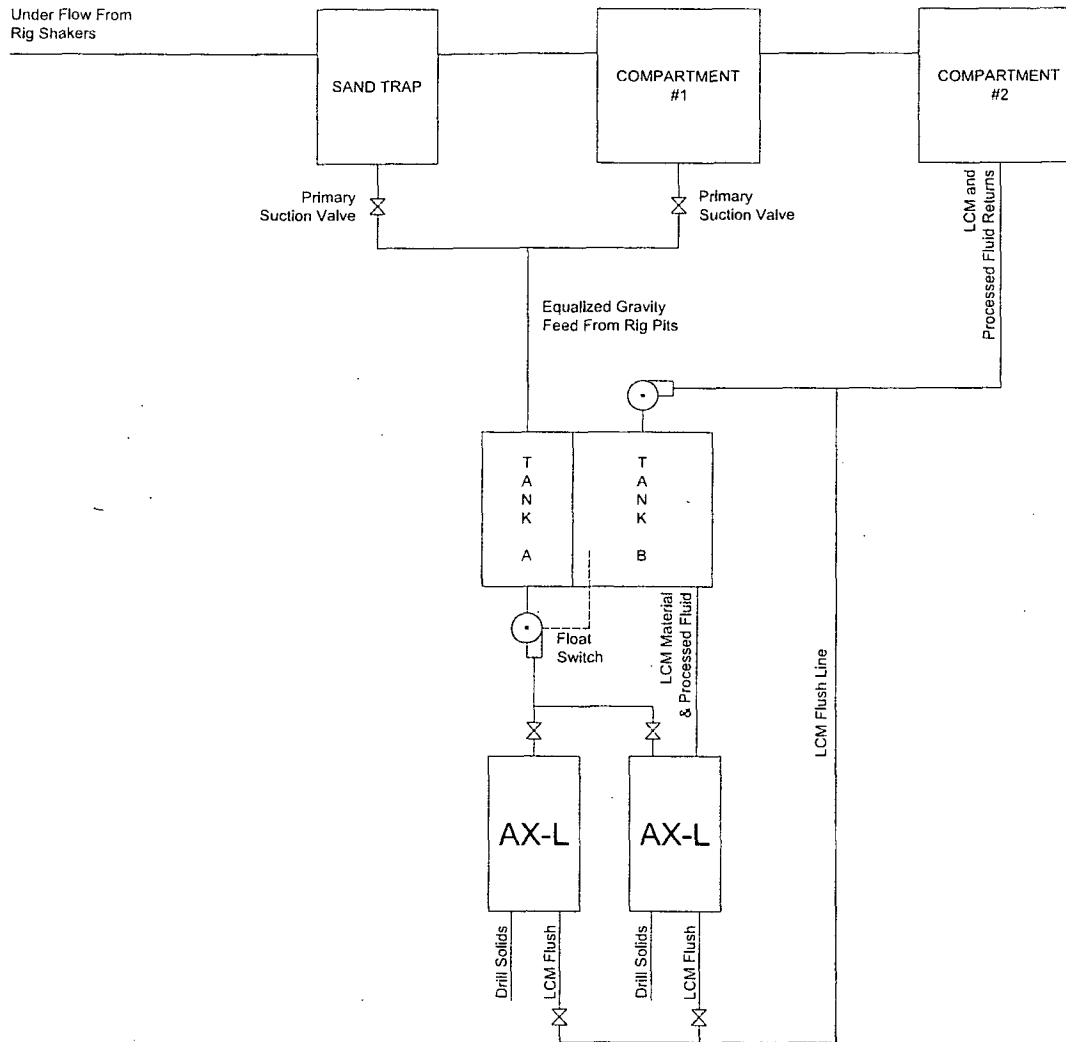
Axiom Mobile Processing Unit



- The Axiom Mobile Processing Unit has the ability to adapt to multiple well plan footprints with rapid response and rig up time.
- Retain WBS material while controlling drill solids.
- The Axiom MPU is monitored 24/7 by trained Axiom personnel.
- Our past field operations has always shown financial benefits to the customer over the previous solids control equipment used.

Thank You
Questions?





NOTES:

1. PUMP SUCTION ON TANK A FEEDS TWO (2) AX-L SHAKERS. PROCESSED FLUID AND LCM RETURNS DISCHARGED INTO TANK B. IF TANK B REACHES 80% CAPACITY, THE FLOAT SWITCH WILL DISENGAGE POWER TO FEED PUMP ON TANK A. THIS WILL ELIMINATE OVER FLOW OF PUMP UNIT ON TANK B. TANK A VOLUME WILL EQUALIZE TO RIG PIT VOLUME. TANK A IS 12" GREATER IN HEIGHT THAN RIG PITS.
2. SAND TRAP AND COMPARTMENT #1 WILL BE MANIFOLDED TOGETHER TO ALLOW CONTINUOUS FLOW INTO AXIOM MPU.

R & D APPROVED

BREAK ALL
SHARP EDGES

PROJECTION

FABRICATED ANGLES:
 $\pm 0.5^\circ$ HOLE DIAMETERS
 $+0.015/-0.000$

POSITION TOLERANCE

0.10"

DRAWN:

RM

DATE:

11/12/14

DWG CHK:

DATE:

This drawing is the property of AXIOM PROCESS LLC and may not be copied or disclosed to any 3rd party or used for any purpose other than directly for the company without prior written consent.

AXIOM
PROCESS LTD

AXIOM PROCESS LLC
PO BOX 7804
THE WOODLANDS
TEXAS

TEL: +1 832-229-6290

H & P 486
PI&D

DRAWING NO:

LLC-SK-01-0001

REV

A

CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CONOCOPHILLIPS
LEASE NO.:	NMLC069515
WELL NAME & NO.:	War Hammer 25 Federal Com W3 1H
SURFACE HOLE FOOTAGE:	250' FNL & 125' FEL
LOCATION:	Section 25, T.26S., R32E., NMPM
COUNTY:	Lea County, New Mexico

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Setting surface casing with Pinnergy Rig
 - a. Notify the BLM when removing the Pinnergy Rig.
 - b. Notify the BLM when moving in the H&P Flex Rig. Rig to be moved in within 90 days of notification that Pinnergy Rig has left the location. Failure to notify or have rig on location within 90 days will result in an Incident of Non-Compliance.
 - c. Once the H&P Flex Rig is on location, it will drill the War Hammer 25 Federal Com 1H/2H/3H/4H in conjunction using batch drilling.
 - d. BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as H&P Flex Rig is rigged up on well. CIT for the surface casing shall be performed and results recorded on subsequent sundry.

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Abnormal pressures may occur in the Wolfcamp.

Possible water flows in the Salt and the Castile.

Possible lost circulation in the Delaware.

1. The 13-3/8 inch surface casing shall be set at approximately **800 feet (in a competent bed below the Magenta Dolomite, a Member of the Rustler)** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature

survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

- b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Formation below the 13-3/8" shoe to be tested according to Onshore Order

2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

Contingency Casing: The plan is to drill the well without the 9-5/8 inch intermediate casing, but if hole conditions decline then the 9-5/8 casing will be run.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i.

Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

3. The minimum required fill of cement behind the 7-5/8 inch 2nd intermediate casing is:

☒ Cement to surface. Operator shall provide method of verification.
Additional cement will be required as the excess calculates to -17%.

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i.

Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

4. The minimum required fill of cement behind the 5 inch production casing is:
 - ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Additional cement will be required as the excess calculates to -8%.**
5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

Option 1 - BOP testing if wells are drilled conventionally- BOP is not removed between casing strings.

3. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 psi.**
 - a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
 - b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
 - c. **Manufacturer representative shall install the test plug for the initial BOP test.**

- d. Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.
- e. Operator shall perform the 9-5/8" casing integrity tests to 70% of the casing burst. This will test the multi-bowl seals.
- f. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

Option 2 - BOP testing for Batch Drilling-BOP is removed between casing strings

- 4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.** BOP/BOPE shall be tested after nipple up according to Onshore Order #2.
- 5. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 7-5/8 inch shoe shall be **10,000 (10M) psi. 10M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
- 6. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer.**
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall

have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

- d. The results of the test shall be reported to the appropriate BLM office.
- e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

F. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 081715